

## **REMARKS**

In view of the following remarks, reconsideration of the rejections and further examination are requested. Claims 1-7 are pending with claim 1 being independent.

### ***Rejections Under 35 U.S.C. §102(a)(e)***

Claims 1-7 are rejected under 35 U.S.C. §102(a) or (e) as being anticipated by Shiba (U.S. 2005/0093478).

Applicants respectfully traverse this rejection and submit that the claims as currently pending are allowable over the cited prior art. Specifically, independent claim 1 recites a dielectric barrier discharge lamp lighting device comprising a transformer that includes a primary coil and a secondary coil, and supplies a driving voltage to the dielectric barrier discharge lamp from the secondary coil, wherein a self-resonant frequency  $f_r$  of the secondary coil, which is measured with the primary coil of the transformer being open, is equal to the driving frequency  $f_d$  or a frequency in the vicinity of the driving frequency  $f_d$ .

As would be understood by one of ordinary skill in the art, the self-resonant frequency is determined based on parasitic capacitance and parasitic inductance of the coil of the transformer (T) (*see page 14 lines 18 to 25 of the present application*).

The cited prior art fails to disclose or render obvious such a device. In particular, Shiba discloses a lighting device including a pulse number judging circuit for judging a number of drive signal pulses per unit time corresponding to the dimming ratio from the dimming control signal and outputting the result as the pulse number setting signal, and a drive signal generating circuit for outputting the drive signal pulses having a number of pulses per unit time designated by the pulse number setting signal.

The Examiner suggests that in the illustration of a closed circuit ( $V_{cc} \rightarrow C_1 \rightarrow T_1 \rightarrow Z_2 \rightarrow S_2 \rightarrow GND$ ) in Fig. 9 of Shiba, the primary coil is open when the switching element  $S_2$  is open with the switching element  $S_1$  being open. *See the November 10, 2009 Office Action, pg. 2.* However, the situation in which both switching elements  $S_1$  and  $S_2$  are open occurs only when both pulse widths of the signals  $S_1$  and  $S_2$  are narrow, as shown in Fig. 8 of Shiba, and at that time, the driving frequency is expressed by the inverse of the pulse cycle of the signals  $P_1$  and  $P_2$ . However, Shiba fails to disclose a self-resonant frequency at all, and thus cannot disclose a relation between the self-resonant frequency and the driving frequency.

Applicants submit that the driving frequency can be set independently from the circuit configuration; however the self-resonant frequency is specific to the transformer and is determined based on the parasitic capacitance and the parasitic inductance of the coil of the transformer. Arguably, Shiba implies, in paragraph [0050], that several types of frequencies can be used; however, Shiba clearly fails to disclose that the driving frequency is set to a frequency near the resonant frequency so as to prevent flickering in lamp luminance in dimming control.

In the present invention, the driving frequency can be set to a frequency near the resonant frequency which is specific to the transformer, thereby reducing power loss in the transformer.

Thus, Applicants submit that Shiba fails to disclose each of the elements recited in independent claim 1. Moreover, there is no reasoning in the prior art to modify Shiba such that it would have rendered claim 1 obvious. Therefore, independent claim 1 and its dependent claims are allowable over the cited prior art.

### ***Conclusion***

In view of the foregoing amendments and remarks, all of the claims now pending in this application are believed to be in condition for allowance. Reconsideration and favorable action are respectfully solicited.

Should the Examiner believe there are any remaining issues that must be resolved before this application can be allowed, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

Toshiaki KURACHI et al.

/Jeffrey J. Howell/

By \_\_\_\_\_  
Jeffrey J. Howell

Registration No. 46,402

Attorney for Applicants

JJH/ekb  
Washington, D.C. 20005-1503  
Telephone (202) 721-8200  
Facsimile (202) 721-8250  
January 27, 2010